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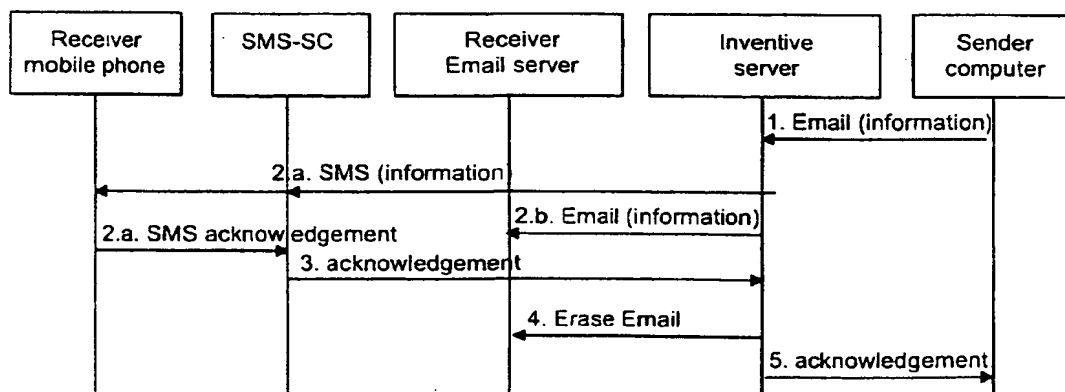
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(54) Title: A SYSTEM AND METHOD OF DELIVERING INFORMATION TO A USER BY AT LEAST TWO DIFFERENT TECHNOLOGIES



(57) Abstract: A method and system for sending information quickly and efficiently from a sender to a receiver. The method comprise the steps of sending information from a sender to the inventive server functionality through a first technology, duplicating the information in the inventive server functionality and forwarding it to the receiver through more than one technology. The method further included erasing the information sent through other technologies when the information has been received through at least one technology. Examples of technologies are Email, Short Message Services, fax, paging, Multimedia Messaging and WAP.



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**A SYSTEM AND METHOD OF DELIVERING INFORMATION TO A USER BY AT LEAST TWO  
DIFFERENT TECHNOLOGIES**

**Field of the invention**

The invention relates in general to transmission of information in a world where  
5 multiple technologies are used to transmit information. In particular it relates to a  
method to deliver quickly information using the best technology available.

**Background of the invention**

Nowadays people are reachable with many technologies like Email, SMS (Short  
10 Message Service) of GSM (Global System for Mobile telecommunications) and  
UMTS (Universal Mobile Telecommunication System), fax, voice mail, PSTN  
call... If you do not want to use a more disturbing call, the fastest technology to  
reach someone are SMS if the receiver is using a GSM mobile phone (and is under  
coverage) or Email if the receiver is in office. Therefore to reach quickly someone,  
15 you may use both, but this creates an annoying duplication of messages.

Alternatively you can use only one technology but you are not sure that it will be the  
fastest one if you do not know where is the person at this time (in office, taxis,  
meeting, under GSM coverage...). Also, if both are available, you might prefer  
Email, as it is more practical to write, read and answer.

20 Traditionally cellular system for example the Global System for Mobile  
telecommunications (GSM), have been used to transmit Short Message, offering a  
similar service to the well known paging system. The information is delivered with  
the SMS technology based on the principle of store and forward. The message is  
stored in a so-called SMS SC (SMS Service Center). The information is delivered  
25 immediately if the user is under GSM radio coverage, and if its mobile phone is  
turned on. Otherwise, it will be delivered as soon as the network detects that the  
mobile phone is reachable. Physically, the information using SMS technology can  
be transmitted via different routes as it can be transferred via a Serving GPRS  
Support Node (SGSN) or via a Mobile Switching Center (MSC).

30 The widely used Email system allows people to exchange information over the  
Internet. This system is fast and convenient but requires that both end users can use  
a computer having Internet access. The Internet access can be provided for example,

by modem, ADSL, WLAN, or cellular systems (e.g. CDPD, GSM Circuit Switched Data, GPRS). Common Email product (e.g. Microsoft Outlook) allows the sender of a message to call this message back, or to receive an acknowledgement when the message has been received and/or read by the receiver.

- 5 Nowadays the idea of unified messaging is becoming more and more common. It consists in converting a message from one technology into another. For example, the unified messaging can convert a fax into an Email, an Email into a SMS, a SMS into a fax, an Email into a WAP (Wireless Application Protocol) message, a fax into a voice message and so on. In future, Multimedia Messaging defined in 3GPP (3<sup>rd</sup>  
10 Generation Partnership Project) will also allow sending message containing text, picture, sound and/or video.

- In this invention, the word technology is used to define a mean to transfer information between two end points supporting same protocol. Typically when information is exchanged between two terminals, both support the same technology.  
15 As mentioned earlier (unified messaging), an intermediate element may adapt the transferred information from one technology to another (i.e. perform a protocol conversion). Examples of technologies are Email, SMS, WAP, Multimedia Messaging, fax, and paging.

- In general, with cellular network and mobility, people want to be reachable all the time and quickly, but depending on their situation and location (bus, meeting room, office, home, taxi, shop...), they are not always able to use the same technology (Email, SMS, fax...), and the same receiver device (Mobile phone, Laptop...). However the sender cannot know what is the best technology to use to transfer the information in a practical and fast way.

25

### Summary of the invention

The object of the invention is to overcome the stated problem and make sure that the transferred information will be delivered to the receiver in a fast and practical way.

- The objects of the invention are achieved with a method and a system characterized in that the transferred information will be send from a device either simultaneously or with a certain delay at least two times through at least two technologies. It should be noted that sending through one technology could be direct or indirect. Therefore if the transferred information has been sent a first time using a first technology  
30

directly to a receiver device and a second time using same first technology to an intermediate server, and then sent using a second technology from the intermediate server to a receiver device, the transferred information has effectively been sent at least two times through at least two technologies. This method comprises the step of  
5 adapting the transferred information to the said technologies. The adaptation of the transferred information may consist in:

- copying text from one technology format (e.g. Email) into another (e.g. SMS), and/or
- compressing or decompressing the information, and/or
- 10 - performing a protocol conversion, and/or
- converting one Codec into another (typically applicable for voice or video transfer).

The objects of the invention are also achieved with a functionality comprising the means of:

- 15 - receiving transferred information using third technology, or an internal interface,
- sending transferred information at least two times through at least two technologies.

In one of the preferred embodiments of the invention, as soon as the receiver has received and/or read the information through one technology, the message carrying  
20 the same information sent through the other technology(s) will automatically be deleted.

In one of the preferred embodiments, the objects of the invention are achieved with a mobile phone capable of sending an acknowledgement when an SMS has been read.

- 25 In one of the preferred embodiments, the objects of the invention are achieved with a mobile phone capable of sending together with the transferred information, further configuration information indicating more than one technology and associated destination addresses where the transferred information should be sent.

In one of the preferred embodiments, the objects of the invention are achieved with  
30 a WAP gateway comprising the functionality of

- receiving transferred information through a third technology,
- adapting if needed, said transferred information to at least a first and a second technology, and

- sending said transferred information to the receiver, at least a first time using said first technology and a second time using said second technology.

In one of the preferred embodiments, the objects of the invention are achieved with an Email software comprising the functionality of

- 5
- adapting if needed, said transferred information to at least a first and a second technology, and
  - sending said transferred information to the receiver, at least a first time using said first technology and a second time using said second technology.

10 In one of the preferred embodiments, the objects of the invention are achieved with an SMS-SC comprising the functionality of

- receiving, storing and forwarding an SMS,
- sending an acknowledgement to the sending entity when the SMS has been received and/or read,
- erasing a stored SMS when requested to do so by said sending entity.

15

### **Brief description of the drawings**

The invention will be described in further details in the following by means of the preferred embodiments with reference to the accompanying drawings, in which:

20 Figure 1 illustrates the successful delivery of the information through SMS in the preferred embodiment.

Figure 2 illustrates the successful delivery of the information through Email in the preferred embodiment.

Figure 3 illustrates the architecture of the preferred embodiment, where only two technologies (Email and SMS) are used.

25 Figure 4 illustrates the possible configuration of a user interface in alternative embodiments.

Figure 5 illustrates the successful delivery of the information through SMS in the fifth embodiment.

Figure 6 illustrates the architecture of one of the embodiment, where an intermediate server is used.

### Detailed description of preferred embodiments

- 5 A preferred embodiment of the invention is a method, and an inventive server characterized in that information is transferred using Email technology from the sender to an inventive server, and is sent by said inventive server to the receiver a first time using a normal Email sent and a second time using an SMS, both containing the same transferred information than the said first Email, or part of it.
- 10 Figure 3 illustrates the architecture of the system according to the preferred embodiment, and depicts the sender computer 1, the inventive server 2, the receiver Email Server 4, the SMS Service Center (SMS-SC) 3, and the receiver mobile phone 5.

The sender computer 1 is a normal computer capable of transferring information using Email technology. The inventive server 4 includes the inventive functionality which is characterized by the steps of

- adapting if needed, said transferred information to at least a first and a second technology (respectively Email and SMS in this preferred embodiment), and
- sending said transferred information to the receiver, at least a first time using said first technology and a second time using said second technology.

In this embodiment, the inventive server further has the capability to receive a message through Email. The SMS-SC 3 is, as defined in GSM and UMTS standards, a device capable of receiving an SMS, and storing the SMS until it has successfully transferred the SMS to the receiver mobile phone 5. The receiver mobile phone 5 is a normal mobile phone according to the GSM or UMTS standards. The mobile phone may be called MS (Mobile Station) or UE (User Equipment) in different specifications. The receiver Email server 4 is a normal Email server, storing the Email message until the receiver computer downloads it.

Figures 1 and 2 illustrate the signalling in accordance with the invention in a preferred embodiment. The first Email (message 1 in figures 1 and 2) is sent from a sender computer to a special address that is used to send urgent message to a receiver. This special address may for example be serge.haumont@urgent.mycompany.com. This special address is handled by the

inventive server. When said first Email reaches the inventive server handling this address (message 1 in figures 1 and 2), the inventive server duplicates the information contained in the said first Email and sends the said information simultaneously using the following technologies:

- 5 - SMS technology: The message (message 2a in figure 1) is sent through SMS technology, using the mobile phone number of Serge Haumont. This number may be preconfigured (as explained in relation with figure 4) or may be read by an application from the internal company phone book.
- 10 - Email technology: The message (message 2b in figure 1) is sent through Email technology to the normal Email address of the receiver (e.g., serge.haumont@mycompany.com). This Email message is sent using the option to request an acknowledgement when the Email is delivered and/or read. The receiver Email address may be easily deduced from said special address (e.g. taking "urgent" away) or may be preconfigured (as explained in relation with  
15 figure 4).

Then two cases have to be considered.

The first case is described in relation with figure 1. The SMS is received by the mobile phone first, and an SMS acknowledgement is sent to the SMS-SC (current procedure). The SMS-SC indicates to the inventive server that the message was  
20 received by the mobile. This indication is sent through a new inventive interface. This interface may be internal if SMS-SC functionality is integrated in the inventive server.

The Inventive server use the "Recall Message procedure" (message 4), well known and existing in many Email systems, to recall the Email. The Email is erased from  
25 the receiver Email server.

It should be noted that the recall procedure works only if the inventive server and the receiver Email server use same or compatible Email software. This could easily be the case if both belong to same corporate or Internet Service Provider (ISP).

The second case is described in relation with figure 2. The Email is delivered and/or  
30 read first (depending on the option set by the inventive server as explained in relation with figure 4). An acknowledgement is sent to the inventive server. The Inventive server then requests the SMS-SC to erase the SMS. This request is sent through a new inventive interface. This interface may be internal if SMS-SC functionality is integrated with the inventive server functionality.

Generally, the SMS has not yet been received to the mobile phone so erasing the SMS when it is still stored in the SMS-SC is sufficient to prevent the receiver from receiving two times the transferred information. But the SMS may due to racing conditions or lost acknowledgement, have been received already by the MS. In this case, as a further improvement to other embodiments, the SMS-SC may request the MS to erase the stored SMS. This may be implemented by adding such a request supporting such functionality in the SMS protocol, or by using another protocol such as Mexe (Mobile Execution Environment defined in GSM and UMTS standards).

10 In a second preferred embodiment, the message 2a and 2b (figures 1 and 2) are not sent simultaneously. The transferred information is first sent through a first technology (e.g. SMS in message 2a) and a timer is started. This timer should be configured so that the transferred information is likely to have been delivered through the first technology before the timer expires. For example, an SMS is likely to be delivered in less than 10 seconds, if the receiver mobile phone is switched on and under cellular coverage. If the acknowledgement 3 is received before the timer expires, the transferred information is not sent through the second technology. If the acknowledgement 3 is not received before the timer expires, the transferred information is sent a second time through the second technology (e.g. Email in message 2b), and the method is after that similar to the first embodiment as shown on figures 1 and 2.

In a third preferred embodiment of the method and system described in any other embodiments, the sender of the information may be notified when the message has been successfully delivered (message 5 in figures 1 and 2). In the preferred embodiment, where Email is used between the sender computer and the inventive server, this acknowledgement (message 5) may be sent using existing Email functionality to inform the sender when the message has been successfully delivered and/or read.

30 In a fourth preferred embodiment of the method and system described in any other embodiments, the mobile phone is acknowledging the SMS when the SMS has been read (and not only delivered). In the figure 1, an "SMS read acknowledgement" would have to be received by the SMS-SC, before the acknowledgement (message 3) can be sent to the inventive server by the SMS-SC. The capability of the mobile phone to send an acknowledgement when an SMS is read is a new feature. The sending of this acknowledgement can be triggered when the user presses the "read SMS" key on the mobile phone user interface. This acknowledgement could be



implemented using the WAP technology, or an enhancement of the SMS standards. In this fourth embodiment, the sender of the information may be notified when the message has been read (and not only delivered) (message 5 in figures 1 and 2). In the preferred embodiment, where Email is used between the sender computer and the inventive server, this acknowledgement (message 5) may be sent using existing Email functionality to inform the sender when the message has been successfully read.

If the information transferred using one technology is deleted only when the transferred information has been read using the other technology, the SMS may have been received already by the MS. This happens typically, if the user receives Email and SMS quite simultaneously, and reads the Email as it is more convenient. In this case, as a further improvement, the SMS-SC may request the MS to erase the stored SMS. This may be implemented by adding such a request supporting such functionality in the SMS protocol, or by using another protocol such as Mexe (Mobile Execution Environment defined in GSM and UMTS standards).

It could be noticed that in all the previously described embodiments, it has been assumed that the same transferred information can be sent using various technologies. All the previous embodiments would perfectly support quite short text message. In reality, different technologies have different limitations. For example, while the Email technology can transfer text, pictures and attachment, the SMS technology can only transfer text of limited size. One SMS contains only 160 characters, but SMS technology can also segment one longer message in multiple SMS. However, the mobile phone memory and the mobile phone screen still limit the practical size of a message that can be transferred through SMS technology.

In a fifth preferred embodiment of the method and system, the transferred information cannot be completely sent through all the technologies that the inventive server can use. A practical example is that the said first Email sent in message 1 (figures 1 and 2) contains text (e.g. a question) and attachment (e.g. a word document containing background information for the question). According to this fifth embodiment, the inventive server duplicates the transferred information contained in the said first Email and sends the said transferred information to the receiver using the following technologies:

- SMS technology: Only part of the said transferred information (e.g. text part) is sent using an SMS message (message 2a in figure 1),

- Email technology: All the said transferred information is sent using an Email message (message 2b in figure 1).

Then two cases have to be considered.

5 The first case is described in relation with figure 5. The SMS is received by the mobile phone first, and an SMS acknowledgement is sent to the SMS-SC (current procedure). The SMS-SC indicates to the inventive server that the message was received by the mobile. This indication is sent through a new inventive interface. This interface may be internal if SMS-SC functionality is integrated with the inventive server functionality.

10 The Inventive server does not recall the Email Message procedure as this message contains information which should be delivered to the receiver, and which was not in the SMS (e.g. a word attachment). The inventive server may optionally acknowledge the successful delivery of the message to the sender (message 4).

15 It should be noted that the signalling also applies to the case where one of the technology do not support erasing the message. This may happen for example if an SMS-SC does not support the means to erase an SMS when requested by the sending entity, or if the Email software are not compatible.

20 The second case is described in relation with figure 2. The Email is delivered and/or read first (depending on the option set by the inventive server). An acknowledgement is sent to the inventive server. The Inventive server then requests the SMS-SC to erase the SMS. This request is sent through a new inventive interface. This interface may be internal if SMS-SC functionality is integrated with the inventive server functionality.

25 The figure 4 illustrates how the sending of transferred information through multiple technologies may be configured.

30 In a simple case, the receiver address (e.g. serge.haumont@urgent.mycompany.com) may correspond a list of technologies. For each technology, the configuration indicates if this technology should be used to forward the transferred information, or not. On figure 4, this is illustrated by indicating yes or no in front of each technology. Then the inventive server will forward the transferred information sent to this receiver to all the technologies marked "yes". Moreover for every technology, the inventive server needs a destination address. The figure 4 illustrates the case where each destination address is manually configured. This configuration may be

done by the receiver, by an administrator or by the sender. If the configuration is made by the sender, it implies that the technology used between the sender (1) and the inventive server (2) can support the transfer of this configuration or that the sender device and the inventive server are integrated in a single device.

- 5 The configuration may contain also parameters adapted for various technologies. For example, it could request that messages sent through other technologies are erased when the message has been read or when it has been received (possible with Email technology, and SMS according to the fourth embodiment).

10 If an acknowledgement can be sent when the transferred information has been delivered to the receiver and/or read by the receiver, this may as well be configured (as illustrated by the last line in figure 4).

Even if the inventive server has been described as an independent entity in the preferred embodiment for the sake of clarity, it is apparent for those skilled in the art that the inventive functionality of this server can be integrated in another device.

- 15 In a sixth preferred implementation of this invention, the inventive functionality is integrated in the Email software of the sender computer. It implies that the sender configures for every receiver typically stored in its address book a list of technologies with which the transferred information should be delivered. This could be done with an interface similar to the one depicted on figure 4. It also implies that  
20 the Email software is capable of sending message through multiple technologies. This may be done by supporting multiple technologies, or as explained in the eighth embodiment, by forwarding the transferred information to an intermediate server which will adapt it to another technology. In this embodiment, a separate address such as serge.haumont@urgent.mycompany.com is not needed. It is enough that the  
25 name of the receiver is linked, e.g. by the address book, to at least one address for every technology with which the transferred information will be sent.

- In a seventh preferred embodiment, the inventive functionality is integrated in the Email software of the receiver Email server. It implies that the receiver or an administrator configures a list of technology with which the transferred information  
30 should be delivered. The address linked with every said technology may be configured manually, or by allowing the inventive functionality to retrieve it from an existing database. This could be done with an interface similar to the one depicted on figure 4. It also implies that the Email software is capable of sending message using multiple technologies. This may be done directly by supporting multiple  
35 technologies, or indirectly as further explained in relation to the eighth embodiment,

by forwarding the transferred information to an intermediate server which will adapt it to another technology. In this embodiment, a separate address such as serge.haumont@urgent.mycompany.com is not needed. It is enough that the Email address of the receiver is linked, e.g. by an address book, to at least one address for every other technology with which the transferred information will be sent.

In a eighth preferred embodiment, while the transferred information is sent to the receiver using more than one technology, the inventive server uses an intermediate server to convert the message containing said information from one technology into another. Therefore, the inventive server may forward the transferred information at least two times using the same technology, but the receiver will receive the transferred information at least two times using at least two technologies. So the transferred information has effectively been sent at least two times using at least two technologies.

This is illustrated by figure 6. The inventive server is integrated in the Email software of the sender computer (1). In order to forward the transferred information using SMS technology, the inventive server functionality uses existing means to send an SMS using an Email software. These means consist in sending an Email using a special address (e.g. phone040123456@sms.mycompany.com) of an intermediate server (3) which converts the Email message into an SMS on the model of unified messaging.

A person skilled in the art can easily notice that the 6<sup>th</sup> and 8<sup>th</sup> preferred embodiments would not be optimal if the sender is using a mobile phone as it would require to transfer at least two times the transferred information across the relatively costly radio interface.

In a ninth preferred embodiment, the sender device is a mobile phone and the inventive functionality is integrated within a WAP gateway. One of the benefits of this implementation is that the transferred information is sent only once across the radio. An additional benefit is that the configuration parameter (as illustrated in figure 4) could easily be sent from the mobile phone to the inventive server functionality together with the transferred information using WAP technology. The WAP gateway may forward the transferred information, at least a first time using Email technology and a second time using SMS technology.

In a tenth alternative embodiment, this inventive functionality is integrated within an SMS Service Center. This avoids the need of a specific interface between the inventive server and an SMS-SC.

The invention presented here bring multiple advantage to the user:

- fast delivery of information,
  - information can be displayed using the best media available,
  - according to preferred embodiments of the invention, the transmitted
- 5        information will be seen only once by the receiver.

It is obvious to those skilled in the art that the basic inventive idea can be implemented in a variety of ways. The word "read" has been used in this invention to describe that the user gets to know the content of the transferred information. Therefore the word "read" should be understood in a broad sense in particular in the

10        case of multimedia messages which may include video, picture and voices. For example, in the case of video, the application will read the video file and the video will be displayed to the user. Another example is a receiver checking its voice message using a normal phone call. In this case, the voice message is read by the voice mail server and sent through the PSTN (or ISDN or GSM) network to the

15        receiver who listens it. The receiver may also receive the transferred information using a single device supporting many technologies, and/or using many devices supporting each one technology. Thus the invention and its embodiments are not restricted to the above examples, but may vary within the scope of the claims.

**Claims**

1. A method to transfer information between a sender and a receiver  
**characterized** in that the receiver is capable of receiving information through at  
least a first technology and a second technology using one or many receiving  
5 devices, said method comprising the steps of
  - adapting if needed, said transferred information to at least a first and a second  
technology, and
  - sending said transferred information or part of it to the receiver, at least a first  
time using said first technology and a second time using said second technology.
- 10 2. A method as claimed in claim 1 **characterized** by
  - sending an acknowledgement from a receiver device when said transferred  
information has been delivered and/or read, through said first technology,
  - erasing said transferred information which has been sent using at least said  
15 second technology when said acknowledgement indicating that said transferred  
information sent using said first technology has been delivered or read, is  
received.
3. A method as claimed in claim 2 **characterized** by
  - checking if information has been lost when adapting said transferred information  
to at least first and/or second technology, and
  - 20 - receiving an acknowledgement indicating that said transferred information sent  
using said first technology has been delivered/read, and
  - erasing said transferred information which has been transferred using at least  
said second technology if no information has been lost when adapting said  
transferred information to said first technology.
- 25 4. A method as claimed in any of the preceding claims **characterized** by
  - sending said transferred information a first time using said first technology,
  - starting a timer, and

- sending said transferred information at least a second time using said second technology if no acknowledgement indicating that said transferred information has been delivered and/or read, has been received before the timer expired.
- 5. A mobile phone said mobile phone being arranged to
- 5 - receive transferred information through at least one technology,
  - detect when the user read said transferred information,
  - acknowledge that the user has read said transferred information.
- 6. A system to send transferred information to a receiver **characterized** by
  - 10 - a sender device capable of sending said transferred information using a third technology
  - a functional entity characterized by the means of
    - receiving said transferred information using said third technology,
    - adapting if needed, said transferred information to at least a first and a second technology, and
  - 15 - sending said transferred information to the receiver, at least a first time using said first technology and a second time using said second technology,
  - erasing said transferred information which has been transferred using at least said second technology when an acknowledgement indicating that said transferred information sent using said first technology has been delivered and/or read, is received;
  - 20 - one or more receiver devices, characterized by the means of receiving said transferred information using at least said first and second technologies.
- 7. A system to send transferred information to a receiver **characterized** by
  - a functional entity comprising the means of
  - 25 - sending said transferred information, at least a first time to a receiver device using a first technology and a second time to an intermediate entity,

- erasing said transferred information which has been transferred using at least said second technology when an acknowledgement indicating that said transferred information sent using said first technology has been delivered and/or read, is received;
- 5    - an intermediate entity comprising the means of
- receiving said transferred information,
  - adapting if needed, said transferred information to at least a second technology, and
  - sending said transferred information to the receiver, at least a first time using
- 10    said second technology;
- one or more receiver devices, comprising the means of receiving said transferred information using at least said first and second technologies.
8.    A system as claimed in claim 6 where said sender device is a mobile phone and said functional entity is integrated in a WAP gateway.
- 15    9.    An Email software, said Email software being arranged to
- adapt if needed, said transferred information to at least a first and a second technology, and
  - send said transferred information to the receiver, at least a first time using said first technology and a second time using said second technology,
- 20    - erase said transferred information which has been transferred using at least said second technology when an acknowledgement indicating that said transferred information sent using said first technology has been delivered or read, is received.
10.    A system according to claim 6 or 7 further **characterized** in that
- 25    - said first technology is Email and said second technology is SMS,
- at least one of the receiver device is a mobile phone,
  - the transferred information is erased by sending a request to an SMS-SC and/or to an Email server,



- said SMS-SC is further arranged to
    - send an acknowledgment to said functional entity when the transferred information has been delivered and/or read,
    - erase SMS containing said transferred information if requested by said functional entity, said SMS being stored inside SMS-SC and/or inside said mobile phone.
- 5

1/3

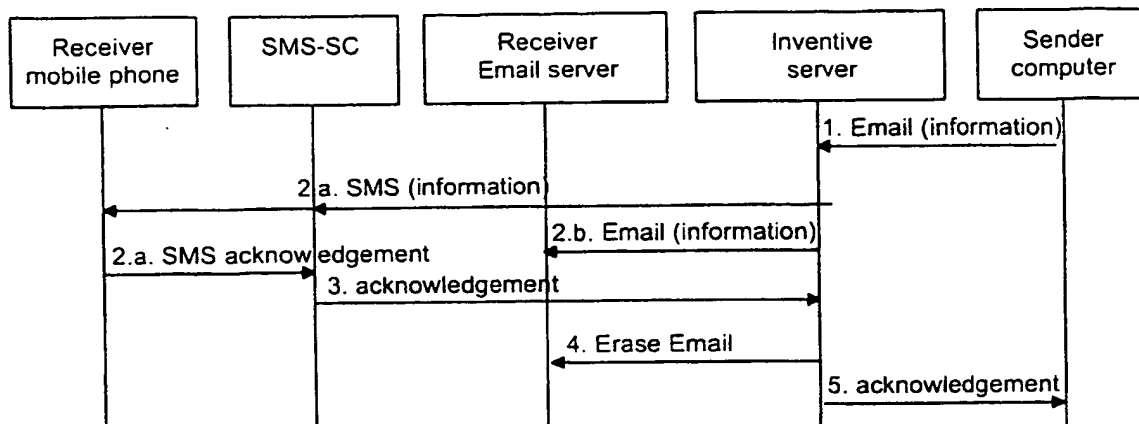


Figure 1

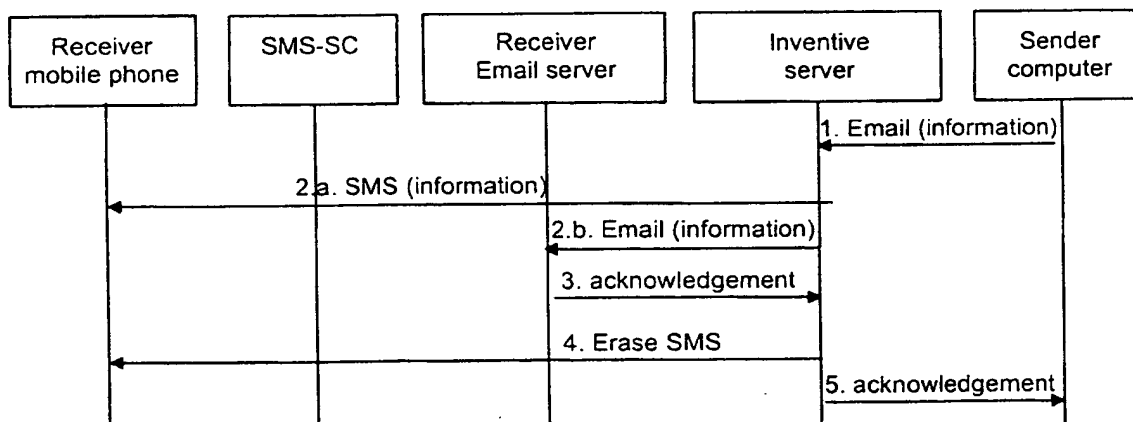


Figure 2

2/3

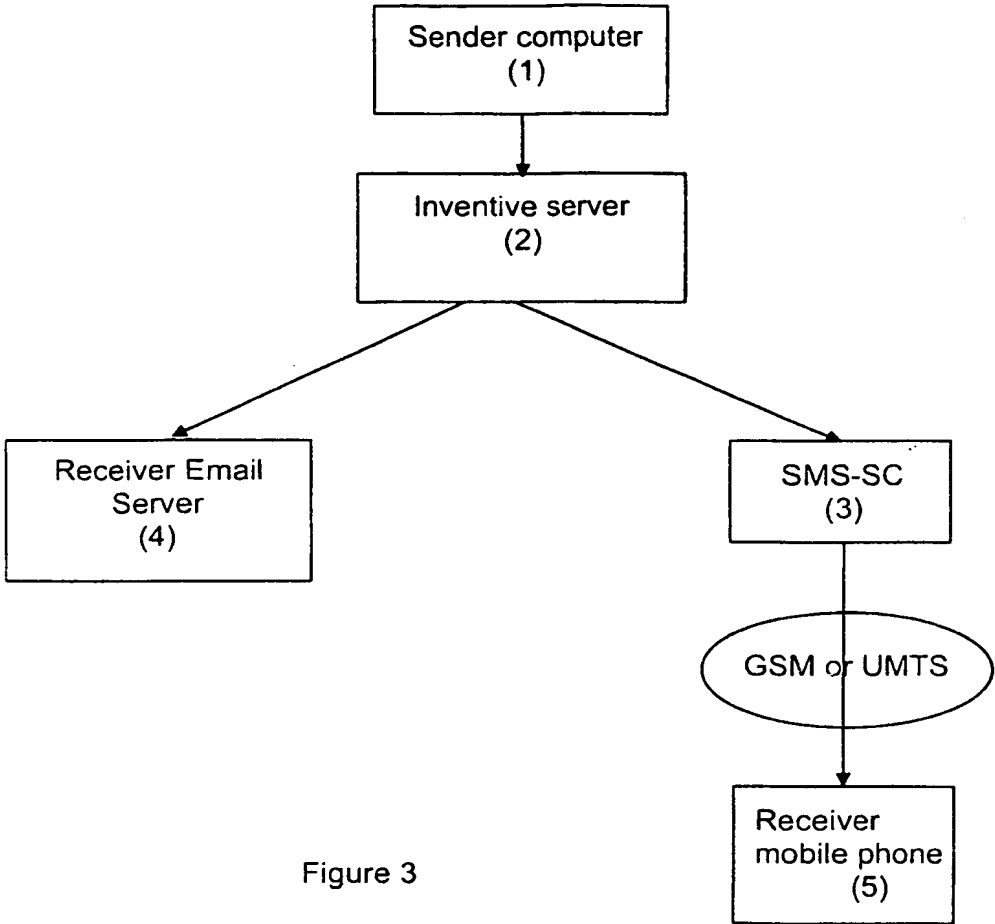


Figure 3

Receiver: Serge Haumont
SMS: Yes/No, if yes, number: 1234
Email: Yes/No; If yes, address: Serge.haumont@mycompany.com
Easement of message(s) sent through other technology when this message has been: <input type="checkbox"/> read <input type="checkbox"/> delivered
Multimedia messaging: Yes/No; If yes, number: 99934
Paging: Yes/No; If yes, number: 34987
Acknowledgement sent to the sender when message has been: <input type="checkbox"/> Read <input type="checkbox"/> Delivered

Figure 4

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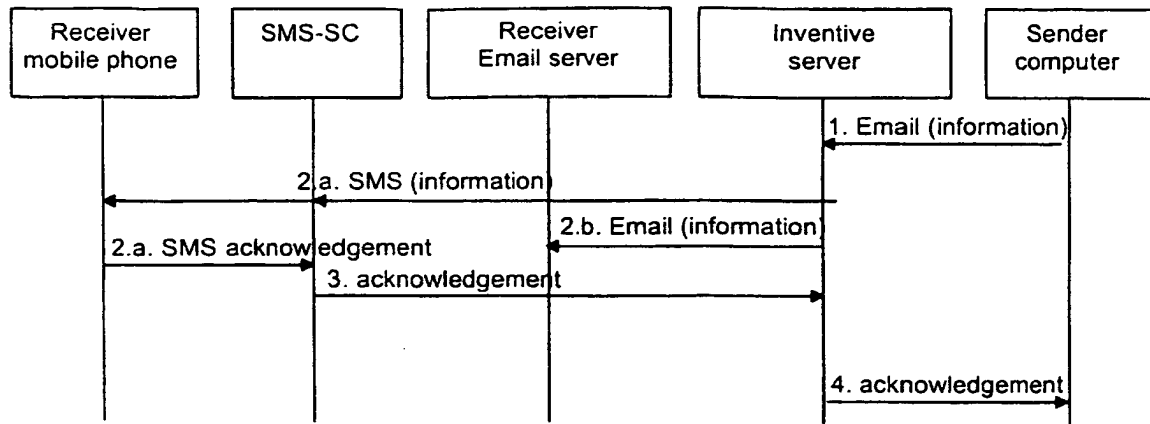


Figure 5

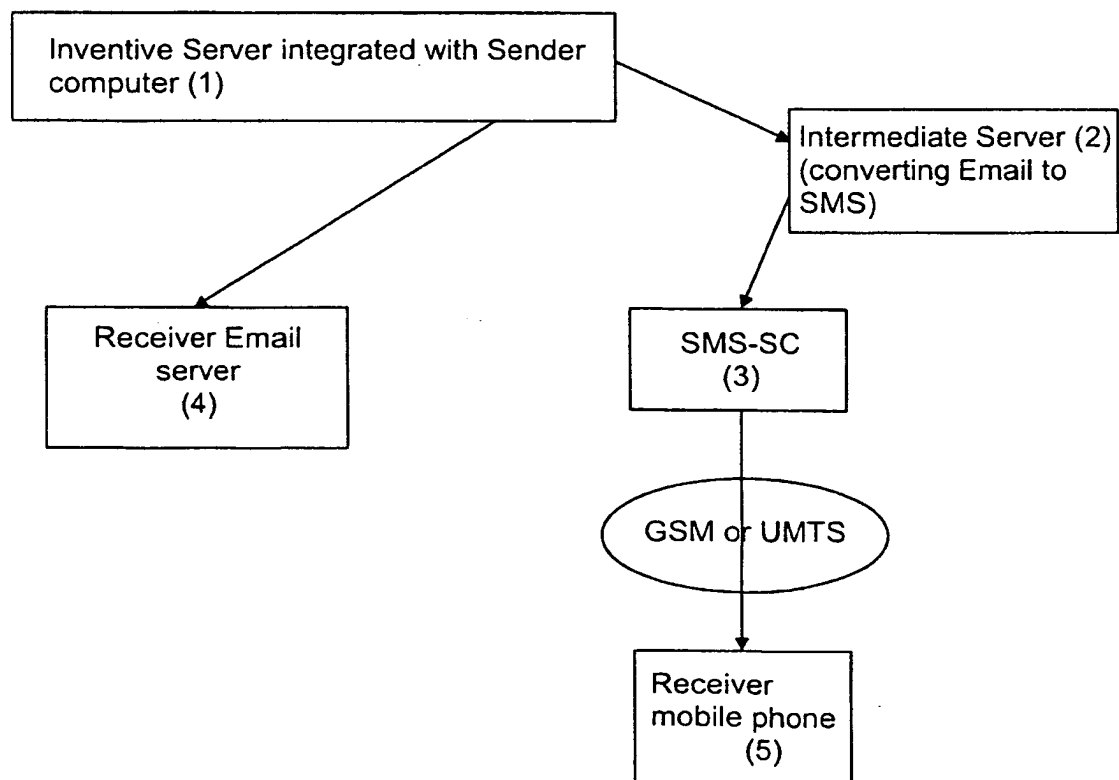


Figure 6

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/FI 01/00738

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04L12/58

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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"Z" document member of the same patent family

Date of the actual completion of the international search

16 May 2002

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/FI 01/00738

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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